



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/688,436	10/17/2003	Robert Mandelbaum	SAR 14822	1576
55549	7590	05/03/2006	EXAMINER	
MOSER IP LAW GROUP / SARNOFF CORPORATION			LIU, MICHAEL	
1040 BROAD STREET			ART UNIT	
2ND FLOOR			PAPER NUMBER	
SHREWSBURY, NJ 07702			2851	

DATE MAILED: 05/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/688,436

Applicant(s)

MANDELBAUM ET AL.

Examiner

Michael Liu

Art Unit

2851

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>20031017, 20040512</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. 35 U.S.C. 112, first paragraph, requires the specification to be written in "full, clear, concise, and exact terms." The specification is replete with terms which are not clear, concise and exact. The specification should be revised carefully in order to comply with 35 U.S.C. 112, first paragraph. Examples of some unclear, inexact or verbose terms used in the specification are: Paragraph 0026 contains the sentence, "Inside the housing is a plurality of camera cameras 12." The word "camera" should be deleted from the sentence as it appears redundant. Reference number 12 only refers to one camera; therefore, in order to refer to "a plurality of cameras," 18 should also be added. The sentence should read, "Inside the housing is a plurality of cameras 12 and 18."

Claim Objections

2. Claim 10 is objected to because of the following informalities: "Camera" is spelled incorrectly as "cameral." Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-5 and 7-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Smith (3,023,666).

Art Unit: 2851

5. With respect to claims 1, 4, 5, and 7, Smith teaches a camera system (Figure 1) and an imaging method, comprising: a first camera (B) having a first principle point (12b) and a first field of view (b); a second camera (A); and an optical element (mirror 4), coupled to said second camera, for producing a virtual second principle point (close to 12b) and a second field of view (a) via a reflection, wherein said first principle point and said second virtual principle point are separated by a distance and are on a locus of a geometric curve, and wherein said first field of view and said second field of view overlap (Column 1, lines 29-31: "Objects of the scene are duplicated on films of adjoining cameras.") Due to this overlap, the first principle point and the second virtual principle point must be separated by a small, but distinct, distance.

6. With respect to claims 2 and 8, Smith teaches the geometric curve is a circle of radius R. A circle of radius R can be drawn to fit the two principle points 12b and the virtual principle point of 12a.

7. With respect to claims 3 and 9, Smith teaches said radius R reduces a parallax (Column 1, line 17: "Parallax is avoided.") between said first and second cameras below a predetermined maximum allowable threshold such that seamless blending (Column 1, lines 25-27: "There be no discontinuity at the junction of the portions of the scene photographed by the separate cameras.") of said first and second fields of view is enabled.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2851

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Smith in view of Toh (6,346,965). Smith discloses the limitations of claim 4 (see above 102 rejection). Smith does not expressly disclose said optical element is a prism. Toh teaches a high resolution imaging system with multiple cameras using prisms. At the time of the invention it would have been obvious to a person of ordinary skill in the art to replace the mirror of Smith with Toh's prism. The motivation for doing so would have been that a prism does not reverse the image like a mirror.

10. Claims 10-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tuck (4,772,942) in view of Yano et al. (6,112,033).

11. With respect to claims 10, 13, and 16, Tuck discloses a vehicle (column 1, line 7: "tank"), comprising: a vehicle body; a camera assembly attached (Figure 3) to said vehicle body, said camera assembly having a plurality of cameras (10-13) that each image forms an associated field of view, wherein each camera has an associated, unique principle point; wherein a field of view of one camera overlaps (Column 4, lines 34-35: "With respect to its nearest neighbour has a 10% overlap.") with an adjacent field of view. Tuck does not expressly disclose each camera having an associated prism. Yano et al. teaches a multiple lens image pickup apparatus that utilizes prisms. At the time of the invention it would have been obvious to a person of ordinary skill in the art to combine each camera of Tuck with a prism of Yano et al. The motivation for

Art Unit: 2851

doing so would be to protect the cameras from the outside environment by bouncing the light first through a prism rather than directly pointing it at the field of view.

12. With respect to claim 11, Tuck discloses wherein all principle points are located on a circle having a radius R (Figure 3).

13. With respect to claim 12, Tuck discloses wherein said radius R reduces parallax between adjacent cameras such that seamless blending of fields of view is enabled.

Column 2, lines 1-4 state, "It is therefore possible to interlink adjacent displays without substantial 'barrel' or 'pin-cushion' distortion at the edges thereof, which would otherwise create a mismatch therebetween."

14. With respect to claims 14 and 15, Yano et al. discloses wherein said camera assembly includes a housing (74) and said housing retains said cameras and said prisms such that cameras are optically aligned with their associated prisms.

Telephone Numbers

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Liu whose telephone number is (571) 272-9019. The examiner can normally be reached on Monday through Friday 9 am - 5 pm EST.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571) 272-2258. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2851

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael Liu
Examiner
Art Unit 2851

ml


JUDY NGUYEN
SUPERVISORY PATENT EXAMINER